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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,323	05/09/2005	Jin Soo Seo	2167.008US1	4880
21186 7590 03/18/2010 SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402				
EXAMINER				
BITAR, NANCY				
ART UNIT		PAPER NUMBER		
2624				
NOTIFICATION DATE		DELIVERY MODE		
03/18/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@slwip.com
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Office Action Summary

Application No.

10/534,323

Applicant(s)

SEO ET AL.

Examiner

NANCY BITAR

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GA-108)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 12/18/2009, 2/26/2010

DETAILED ACTION

Response to Arguments

1. Applicant's response to the last Office Action, filed 9/21/2009, has been entered and made of record.
2. Claims 1-15 are currently pending.
3. Applicants arguments filed 12/18/2009 have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of

Chen et al (Symmetric phase-only matched filtering of Fourier mellin transforms for image registration and recognition)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Haitsma ET al (US 7,549,052), in view of Chen et al (Symmetric phase-only matched filtering of Fourier mellin transforms for image registration and recognition) and further Pareira et al (template based recovery of Fourier based watermarks using log polar and log-log maps) .

As to claim 1, Haitsma et al teaches a method of extracting a fingerprint from a multimedia audio signal, the method comprising the steps of:

extracting a set of robust perceptual features from the audio signal (The audio clip is divided (12) into successive (preferably overlapping) frames. For each frame, the frequency spectrum is divided (15) into bands. A robust property of each band (e.g. energy) is computed (16) and represented (17) by a respective hash bit, see abstract); subjecting the extracted set of features to a Fourier-Mellin transform to compensate for speed changes in the audio signal (the spectral representation of every frame is computed by a Fourier transform circuit 13. In the next block 14, the absolute values (magnitudes) of the (complex) Fourier coefficients are computed, Figure 1, column 3 lines 64-column 4 lines 1-67), while Haitsma meets a number of limitations above, Haitsma fails to specifically teach converting the transformed set of feature sequence to constitute the fingerprint. Specifically Chen et al teaches extracting a fingerprint from an image (multimedia signal) by extracting robust perceptual features (translated, rotated, scaled) and subjecting them to a Fourier Mellin transform (section II and III); (section C, page 1165; note that even the claim is addressing audio signal it is well known in this particular technical field to transpose image processing techniques to audio and viceversa). Because the Fourier Mellin transform allows one to reduce the dimension of the parameter space in which the correlation quality figure is optimized it would have been obvious to one of ordinary skill in the art to use the transformation of Chen in Haitsma's Fourier transform circuit 13 in order to match rotated and scaled images accurately and efficiently and guaranteeing a high discrimination power and excellent robustness in the presence of noise. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 2, Pereira et al. teaches a method as claimed in claim 1, wherein said converting step includes converting the magnitudes of the Fourier-Mellin transform (see section 4.4, magnitude of the FFT,

pages 3-5). Because transferring the magnitude of the Fourier mellin transform renders the method robust against rotation scaling or aspect ratio changes. It would have been obvious to one of ordinary skill in the art to include the magnitude algorithm in Fourier transform of Sharma et al in order to overcome the sampling problem and maximizing the number of points matched between the known template and the image.

As to claim 3, Chen et al teaches the method as claimed in claim 1, wherein said converting step includes converting a derivative of the phase of the Fourier-Mellin transform. (Chen et al pages 1162-1167)

As to claim 4, Pareira et al. teaches a method as claimed in claim 1, wherein Fourier-Mellin transform includes a one-dimensional log mapping process being applied to the set of perceptual features (see section 2.1 and 4.4).

As to claim 5, Pereira et al. teaches method as claimed in claim 1, wherein the audio signal forms part of an image or video signal and said Fourier-Mellin transform includes a two-dimensional log-polar mapping process being applied to the set of perceptual features (see section 4.1, log-polar mapping , page 3).

As to claim 6, Pareira et al. teaches method as claimed in claim 1, wherein the audio signal forms part of an image or video signal and said Fourier-Mellin transform includes a two-dimensional log-log mapping process being applied to the set of perceptual features (section 4.2, log-log mapping, page 3, see also section 4.4).

As to claim 7, Chen et al teaches the method as claimed in claim 1, wherein said extracting includes normalization of the set of perceptual features (abstract, section B and C)

Claims 8- 15 differ from claims 1-7 only in that claims 1-7 are method claim whereas, claims 8-15 are an apparatus claim. Thus, claims 8-15 are analyzed as previously discussed with respect to claims 1-7 above.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nancy Bitar/
Examiner, Art Unit 2624

/WESLEY TUCKER/
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